RAE-42157-002-1
Rev. 2 – Final

SITING EVALUATION REPORT (SiER)

FOR PROPOSED DISPOSAL UNDER URCR R313-25-3 OF CLASS B & C LOW-LEVEL RADIOACTIVE WASTE AT ENVIROCARE OF UTAH, INC.

May 2, 2000

Division of Radiation Control
Utah Department of Environmental Quality

and

Rogers & Associates Engineering Unit
Dames & Moore Inc.
515 East 4500 South, Salt Lake City, UT 84107

TABLE OF CONTENTS

1. INTRODUCTION

Section 105 of the Utah Radiation Control Act (the Act) provides that no person may construct a new commercial radioactive waste treatment or disposal facility until, among other things, the requirements of Section 104 of the Act have been satisfied. By authority of Section 104 of the Act, the Utah Radiation Control Board has established criteria for siting commercial low-level waste treatment or disposal facilities. These regulations are contained in the Utah Radiation Control Rules (URCR), Section R313-25-3 entitled "Siting Criteria and Pre-licensing Plan Approval for Commercial Radioactive Waste Disposal Facilities." The requirements of URCR R313-25-3 address site-related topics such as:

- Land Use Designations;
- Geology;
- Groundwater Hydrology;
- Surface Water Hydrology;
- Transportation Systems;
- Emergency Response Plans; and
- Projected Risks of Facility Operation.

The complete text of the R313-25-3 regulation is presented in Appendix A of this SiER.

Envirocare of Utah, Inc. (Envirocare) has commenced the process of obtaining the necessary approvals to construct and operate a new disposal cell for containerized Class A, B, and C low-level radioactive wastes at its existing facility in Section 32, T1S, R11W, SLBM in Tooele County, Utah. In response to the requirements of URCR Section R313-25-3, Envirocare submitted its "Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste" (Env00a) on January 5, 2000.

Under provisions and authority of the Act, the Utah Division of Radiation Control (the Division) has reviewed Envirocare's application. The Division employed its contractor, the Rogers & Associates Engineering Unit of Dames & Moore, Inc. for technical assistance with the review. The Division

followed the following approach for review of the application:

1. Prepare draft and final Regulatory Findings that must be addressed in the review of the Application.
2. Review the Envirocare Application.
3. Prepare Interrogatories, as necessary, to obtain further information or clarify information in the Application.
4. Review Interrogatory responses, assuming that all required information is contained in either the initial submittal or responses to the first round of Interrogatories.
5. Prepare draft and final Siting Evaluation Report (SiER).
6. Attend and support the Division in related Public Hearings.
7. Review and prepare draft and final responses to technical comments received during Public Comment.

As the work was carried out, the Division and its contractor prepared and transmitted one round of interrogatories to Envirocare. Envirocare prepared and submitted responses and revised text for the interrogatories (Env00b). The Division and its contractor reviewed and evaluated Envirocare's responses to the interrogatories and found most of them to be adequate for a positive finding. Several required additional documentation, however, which was addressed in a teleconference call between the Division, its contractor, and Envirocare. Envirocare responded to the remaining items (Env00c) and these responses were found to be adequate by the Division and its contractor. Envirocare submitted a revised "Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste" (Env00d) on March 15, 2000.

Upon resolution of all technical issues to the satisfaction of the reviewers, the Division prepared this Siting Evaluation Report (SiER) to summarize the information Envirocare submitted in its initial submittal and in its responses to interrogatories. The information summarized in this SiER demonstrates that each individual siting criterion is satisfied. This SiER is the vehicle by which the Division shows its rationale for concluding whether the applicable regulatory requirements are satisfied and that a particular licensing action is justifiable under provisions of the Act and the regulation (URCR R313-25-2).

The Executive Director of the Radiation Control Board is ultimately responsible to determine whether all applicable regulatory requirements are satisfied and to recommend a licensing action to the

Radiation Control Board. This required recommendation appears under separate cover. Copies of this SiER are available to interested parties upon request to the Division.

FINDING:

EU-S01: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within a national, state, or county park. **(URCR R313-25-3(3)(a)(i))**

BASIS:

The Envirocare of Utah, Inc. Site is located in Section 32, about 2.6 miles south of Interstate-80 and 7.5 miles east of the Knolls interchange on I-80, between Wendover and Salt Lake City. The application lists and includes the following materials in Appendix A:

(A1) a 1998 map of land ownership for a 1-mile distance around the Envirocare site;
(A2) a 1988 USGS 1:500,000 scale topographic map of Utah;
(A3) a 1995 Utah "Official Highway Map" from the Utah Department of Transportation;
(A4) a 1994 1:100,000 scale Bureau of Land Management map, "Bonneville Salt Flats";
(A5) a 1979 1:100,000 scale USGS topographic map, "Bonneville Salt Flats";
(A6) sections B-3a(1) and B-3a(2) of Envirocare's 1990 RCRA Part B permit application; and
(A7) a March 3, 2000 letter from J. Raymond Johnson, P.E., Director of Tooele County Department of Engineering.

The 1995 Highway Map (A3) gives adequate authoritative evidence that the subject site in Section 32 is not located within a National Park, based on the map's lists and locations of National Parks, none of which is at or contiguous with the proposed facility. The letter from J. Raymond Johnson verifies that the site is also not located within a state or county park, the nearest of which is located more than 35 miles from the Envirocare Property.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Official Highway Map", Utah Department of Transportation, 1995. (copy in Appendix A, Pre-Licensing Plan Approval Application)

Letter from J. Raymond Johnson, P.E., March 3, 2000, to William Sinclair, DEQ (copy in Appendix A, Pre-Licensing Plan Approval Application)

FINDING:

EU-S02: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within a national, state, or county monument. **(URCR R313-25-3(3)(a)(i))**

BASIS:

The Envirocare of Utah, Inc. Site is located in Section 32, about 2.6 miles south of Interstate-80 and 7.5 miles east of the Knolls interchange on I-80, between Wendover and Salt Lake City. The application lists and includes the following materials in Appendix A:

(A1) a 1998 map of land ownership for a 1-mile distance around the Envirocare site;
(A2) a 1988 USGS 1:500,000 scale topographic map of Utah;
(A3) a 1995 Utah "Official Highway Map" from the Utah Department of Transportation;
(A4) a 1994 1:100,000 scale Bureau of Land Management map, "Bonneville Salt Flats";
(A5) a 1979 1:100,000 scale USGS topographic map, "Bonneville Salt Flats";
(A6) sections B-3a(1) and B-3a(2) of Envirocare's 1990 RCRA Part B permit application; and
(A7) a March 3, 2000 letter from J. Raymond Johnson, P.E., Director of Tooele County Department of Engineering.

The 1995 Highway Map (A3) gives adequate authoritative evidence that the subject site in Section 32 is not located within a National Monument, based on the map's lists and locations of National Monuments, none of which is at or contiguous with the proposed facility. The letter from J. Raymond Johnson verifies that the site is also not located within a State or County Monument, the nearest of which is located more than 35 miles from the Envirocare Property.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Official Highway Map", Utah Department of Transportation, 1995. (copy in Appendix A, Pre-Licensing Plan Approval Application)

Letter from J. Raymond Johnson, P.E., March 3, 2000, to William Sinclair, DEQ (copy in Appendix A, Pre-Licensing Plan Approval Application)

FINDING:

EU-S03: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within a national, state, or county recreation area. **(URCR R313-25-3(3)(a)(i))**

BASIS:

The Envirocare of Utah, Inc. Site is located in Section 32, about 2.6 miles south of Interstate-80 and 7.5 miles east of the Knolls interchange on I-80, between Wendover and Salt Lake City. The application lists and includes the following materials in Appendix A:

(A1) a 1998 map of land ownership for a 1-mile distance around the Envirocare site;
(A2) a 1988 USGS 1:500,000 scale topographic map of Utah;
(A3) a 1995 Utah "Official Highway Map" from the Utah Department of Transportation;
(A4) a 1994 1:100,000 scale Bureau of Land Management map, "Bonneville Salt Flats";
(A5) a 1979 1:100,000 scale USGS topographic map, "Bonneville Salt Flats";
(A6) sections B-3a(1) and B-3a(2) of Envirocare's 1990 RCRA Part B permit application; and
(A7) a March 3, 2000 letter from J. Raymond Johnson, P.E., Director of Tooele County Department of Engineering.

The 1995 Highway Map (A3) gives adequate authoritative evidence that the subject site in Section 32 is not located within a National Recreation Area, based on the map's lists and locations of National Recreation Areas, none of which is at or contiguous with the proposed facility. The letter from J. Raymond Johnson verifies that the site is also not located within a State or County Recreation Area, the nearest of which is located more than 35 miles from the Envirocare Property.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Official Highway Map", Utah Department of Transportation, 1995. (copy in Appendix A, Pre-Licensing Plan Approval Application)

Letter from J. Raymond Johnson, P.E., March 3, 2000, to William Sinclair, DEQ (copy in Appendix A, Pre-Licensing Plan Approval Application)

FINDING:

EU-S04: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within a designated wilderness or wilderness study area. **(URCR R313-25-3(3)(a)(i))**

BASIS:

The Envirocare of Utah, Inc. Site is located in Section 32, about 2.6 miles south of Interstate-80 and 7.5 miles east of the Knolls interchange on I-80, between Wendover and Salt Lake City. The application lists and includes the following materials in Appendix A:

(A1) a 1988 USGS 1:500,000 scale topographic map of Utah;
(A2) a 1995 Utah "Official Highway Map" from the Utah Department of Transportation;
(A3) a March 6, 2000 letter from Ronald K. Gaynor, P.E., to Kenneth Alkema with a USFS map; and
(A4) pages from BLM's Utah Wilderness Inventory for 1999.

The (A1) and (A2) maps show Designated Wilderness Areas as of 1988 and 1995, none of which include the proposed facility. The March 6, 2000 letter and map show that the closest Wilderness Area designated by the U.S. Forest Service is the Deseret Peak Wilderness Area in the Stansbury Mountains, about 25 miles from the Envirocare Site. The BLM Utah Wilderness Inventory for 1999 shows that the nearest Wilderness Area or Wilderness Study Area designated by BLM is the Cedar Mountain Wilderness Study Area, which is located about 5 miles east of the Envirocare Site.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Surface Management Status, Utah, Bonneville Salt Flats", U.S. Dept. of Interior, Bureau of Land Management, 1:100,000-scale topographic map, 1994 (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Official Highway Map", Utah Department of Transportation, 1995 (copy in Appendix A, Pre-Licensing Plan Approval Application).

Letter and map from Ronald K. Gaynor, P.E., March 6, 2000, to Kenneth Alkema, Envirocare (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Utah Wilderness Inventory – 1999", U.S. Dept. of Interior, Bureau of Land Management, 1999, pages i, iv, "Northwest Region", 4, and 4M (copy in Appendix A, Pre-Licensing Plan Approval Application).

FINDING:

EU-S05: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facility is not located within a wild and scenic river area. **(URCR R313-25-3(3)(a)(i))**

BASIS:

The Envirocare of Utah, Inc. Site is located in Section 32, about 2.6 miles south of Interstate-80 and 7.5 miles east of the Knolls interchange on I-80, between Wendover and Salt Lake City. The application lists and includes the following materials in Appendix A:

(A1) a 1998 map of land ownership for a 1-mile distance around the Envirocare site;
(A2) a 1988 USGS 1:500,000 scale topographic map of Utah;
(A3) a 1995 Utah "Official Highway Map" from the Utah Department of Transportation;
(A4) a 1994 1:100,000 scale Bureau of Land Management map, "Bonneville Salt Flats";
(A5) a 1979 1:100,000 scale USGS topographic map, "Bonneville Salt Flats"; and
(A6) sections B-3a(1) and B-3a(2) of Envirocare's 1990 RCRA Part B permit application.

The (A2), (A4), and (A5) maps indicate that the closest water feature is an intermittent stream that ends approximately 2 miles from the site. The maps also show that land in the site vicinity is relatively flat, suggesting the absence of nearby geographic scenery or slopes sufficient to induce "wild" water flows. Given the small and intermittent nature of the nearest intermittent stream and the flat surrounding landscape, maps (A2), (A4), and (A5) are accepted as adequate demonstration that the facility is not located within a wild and scenic river area, even though detailed criteria are not presented for this designation.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"State of Utah", U.S. Geological Survey 1:500,000-scale topographic map, 1988 (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Surface Management Status, Utah, Bonneville Salt Flats", U.S. Dept. of Interior, Bureau of Land Management, 1:100,000-scale topographic map, 1994 (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Bonneville Salt Flats, Utah", U.S. Geological Survey 1:100,000-scale metric topographic map, 30x60 minute quadrangle, 1979 (copy in Appendix A, Pre-Licensing Plan Approval Application).

FINDING:

EU-S06: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within or underlain by an ecologically or scientifically significant natural area, including wildlife management areas or habitats for listed or proposed endangered species as designated by federal law. **(URCR R313-25-3(3)(a)(ii))**

BASIS:

The U.S. Fish & Wildlife Service is continually updating threatened & endangered species listings and designating new critical habitats. The two FEISs referenced in the application (NUREG-1476 and DOE/EIS-0099-F) are authoritative objective evidence of a thorough evaluation of impact on endangered species and ecologically significant habitat through 1993.

The applicant has also demonstrated diligence to update the FEIS information by obtaining current information from the local office of the U.S. Fish & Wildlife Service. On March 3, 2000, the USFWS confirmed that there are no endangered or threatened species, candidate species, habitats of concern in that area of the Envirocare facility.

REFERENCES:

Sections 4.5.4, 5.1.5, and 5.2.5, Final Environmental Impact Statement to Construct and Operate Envirocare's 11.e(2) Disposal Facility, NUREG-1476, U.S. NRC, August 1993.
Section 4.7.5, Final Environmental Impact Statement Remedial Actions at the Former Vitro Chemical Company Site South Salt Lake, Salt Lake County, Utah, DOE/EIS-0099-F, U.S. DOE, July 1984.
Letter from Ronald Gaynor relating personal communication with Larry English, USFWS, March 5, 2000.

FINDING:

EU-S07: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within 100-year flood plains. **(URCR R313-25-3(3)(a)(iii))**

BASIS:

The Utah Geological and Mineral Survey Map 111 shows that the Envirocare site is outside of flood areas that have become inundated by water during the past several hundred years due to lake flooding. It also shows that there are no dams whose failure would influence the Envirocare site. The surface water hydrology section of the License Renewal Application shows that the Envirocare site is at the western extremity of the watershed area from the Cedar Mountains (Figure B.7). It also indicates that the water flow from a 100-year flood is about 13-times lower than the probable maximum flood water flow assumed for HEC-1 and HEC-2 analyses that showed negligible impacts on disposed wastes. The Vitro EIS indicates that stream flows from the Cedar Mountain area usually evaporate and infiltrate into the ground before reaching the lower, flatter lands east of Envirocare.

REFERENCES:

"Flood Hazard from Lakes and Failure of Dams in Utah," Map 111, Utah Geological and Mineral Survey, Utah Department of Natural Resources, 1988 (Copy attached to cover, Pre-Licensing Plan Approval Application).

"Surface Water Hydrology," Section 3.5, Radioactive Material License Renewal Application, Envirocare of Utah, March 16, 1998 (Copy in Appendix C, Pre-Licensing Plan Approval Application).

Final Environmental Impact Statement, Remedial Action at the Former Vitro Chemical Company Site, South Salt Lake, Salt Lake County, Utah, DOE/EIS-0099-F, U.S. DOE, July 1984 (section copied in Appendix C, Pre-Licensing Plan Approval Application).

FINDING:

EU-S08: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within 200 feet from a Holocene fault. **(URCR R313-25-3(3)(a)(iv))**

BASIS:

The application presents maps in Appendix D (Figures H-19 and H-20) from Envirocare's RCRA Part B permit application based on Buckman et al (1980) and Slemmons (1984, personal communication), which showed approximate 5-mile distances from the site to possible Holocene faulting. The application also presents section 3.4.2 of Envirocare's License Renewal Application, quoting Arabasz et al, 1989 as evidence that the nearest Holocene fault is 18 miles away. Material provided from a study by Pentacore Resources does not address faulting.

Text from the 1990 RCRA Part B permit application indicates that young (Holocene) fault scarps are subtle and very hard to detect even when present in the lake muds and gravels around the site. This difficulty could conceivably leave open the possibility that Holocene faults are present within 200 feet but have not been detected because of the difficulty in detecting Holocene faults in the site materials. However, the application is judged to adequately demonstrate that Holocene faults are not located within 200 feet because several different studies are cited where Holocene faults are identified in the region, and none is within 200 feet of the proposed disposal site.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

Figures H-19 and H-20 from Envirocare's RCRA Part B Application (copy in Appendix D, Pre-Licensing Plan Approval Application).

Envirocare License Renewal Application, Section 3.4.2, March 16, 1998 (copy in Appendix D, Pre-Licensing Plan Approval Application).

"Revised Hydrogeologic Report for the Envirocare Waste Disposal Facility, Clive, Utah," Pentacore Resources LLC, January, 2000.

FINDING:

EU-S09: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not underlain by underground mines. **(URCR R313-25-3(3)(a)(v))**

BASIS:

This application contains the following excerpts from the 1998 license application and the 1990 RCRA permit application relevant to this criterion:

- "Although the Facility has been classified as located in an area prospectively valuable for oil and gas, no active or pending mining claims or minerals leases are located on the Site. No oil, coal, or other economic minerals are extracted here." p. 3-18, 1998 license application.

- "The land owned by Envirocare has no known underground mines, salt domes, or salt beds." p. B-36, 1990 RCRA permit application.

These statements by themselves do not provide objective evidence that the criterion is met. However, the applicant has demonstrated recent communication with the Utah Division of Oil, Gas and Mining. A March 6, 2000, UDOGM search of its databases revealed that there were no records of active mines, abandoned mines or mining claims in any of the sections within a 5-mile radius of the Envirocare site. The Division finds that the UDOGM database search is sufficient to demonstrate that the facility is not underlain by underground mines.

REFERENCES:

Section 3.4.1.3, Radioactive Material License Renewal Application, Envirocare of Utah, March 16, 1998.
Section B-3a(4), RCRA Part B Permit Application, Envirocare of Utah, March 30, 1990.
Letter from Ronald Gaynor relating personal communication with Vicky Southwick, UDOGM, March 7, 2000 (Copy in Appendix E of the revised Pre-Licensing Plan Approval Application).

FINDING:

EU-S10: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not within or underlain by salt domes or salt beds. **(URCR R313-25-3(3)(a)(v))**

BASIS:

A memorandum is furnished from Dan Shrum, dated March 7, 2000, indicating there are no salt domes beneath the facility. His opinion is based on review of approximately 120 soil borings (some up to 100 feet deep), generation of 8 cross-sections for the "Revised Hydrogeologic Report for the Envirocare Waste Disposal Facility, Clive, Utah" (not included in the application), and an understanding of the general depositional history of the facility. Mr. Shrum is a Professional Geologist in the State of Wyoming (PG-3339) and has practiced geology in the State of Utah for 10 years.

Mr. Shrum's observations of interbedded clays, silts, and sands beneath the site, deposited by the Great Salt Lake and its predecessors, are consistent with previous observations contained in the License Renewal Application, and referenced there to Cook et al., 1964 and Stephens, 1974.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria

Memorandum from Dan Shrum, March 7, 2000 (Copy in Appendix E, Revised Pre-Licensing Plan Approval Application).

"Geologic Site Characteristics," Section 3.4.1, Radioactive Material License Renewal Application, Envirocare of Utah, March 16, 1998 (Copy in Appendix D, Pre-Licensing Plan Approval Application).

FINDING:

EU-S11: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within dam failure flood areas. **(URCR R313-25-3(3)(a)(vi))**

BASIS:

The applicant provides the map “Flood Hazard from Lakes and Failure of Dams in Utah”, Utah Geological and Mineral Survey Map 111, 1988, but does not indicate on the map the location of the disposal site or facility. Based on descriptions of the site location elsewhere in the application, however, the proposed site appears to be well outside of any of the areas identified as dam failure flood areas.

The applicant also provides historical Great Salt Lake levels that are well below the elevation of the proposed disposal site even during historical maxima.

REFERENCES:

Pre-License Plan Approval Application R313-25-3 Siting Criteria, Section (3)(a)vi).

Appendix F, "Flood Hazard from Lakes and Failure of Dams in Utah," Utah Geological and Mineral Survey, 1988, "Fluctuation of Great Salt Lake," U.S. Geological Survey.

FINDING:

EU-S12: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within or underlain by areas subject to landslide, mud flow, or other earth movement, unless adverse impacts can be mitigated. **(URCR R313-25-3(3)(a)(vii))**

BASIS:

The applicant provides the “Landslide Map of Utah”, Utah Geological and Mineral Survey Map 133, 1991, but does not indicate on the map the location of the disposal facility. Based on descriptions of the site location elsewhere in the application, however, the proposed site appears to be well outside of any of the areas identified as subject to landslides.

REFERENCES:

Pre-License Plan Approval Application R313-25-3 Siting Criteria, Section (3)(a)vii).

Appendix G, "Safety Evaluation Report for Envirocare's License Renewal," Section 2.9.10 and Section 2.4, Rogers & Associates Engineering Corporation, October 1998.

Utah Geological and Mineral Survey Map 133, 1991, "Landslide Map of Utah."

FINDING:

EU-S13: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within farmlands classified or evaluated as “prime”, “unique”, or of “statewide importance” by the U.S. Department of Agricultural Soil Conservation Service under the Prime Farmland Protection Act. **(URCR R313-25-3(3)(a)(viii))**

BASIS:

A field investigation by the USDA Soil Conservation Service found that the soil and groundwater at the Envirocare site are of poor quality and the site is not suitable for farming or agriculture. The site is not located within by farmlands classified or evaluated as "prime," "unique," or of "statewide importance" by the SCS under the Prime Farmland Protection Act. The SCS made this determination in 1989 based on soil pH of 8.6, sodium absorption ratio >15, and electrical conductivity >4 Mmhos.

In addition, since the site is located within Tooele County’s Hazardous Industries Area, which is designated for management of industrial and hazardous materials, it is highly unlikely that the area would ever be used for farming or other agricultural purposes.

REFERENCES:

Sections B-3a(1) and B-3a(8), RCRA Part B Permit Application, Envirocare of Utah, March 30, 1990.

Letter from F. Allgood, USDA Soil Conservation Service, June 5, 1989.

FINDING:

EU-S14: The Pre-Licensing Plan Approval Application does adequately demonstrate that the treatment and disposal facilities are not located within five miles of existing permanent dwellings, residential areas, or other habitable structures, including schools, churches, and historic structures. **(URCR R313-25-3(3)(a)(ix))**

BASIS:

Mr. J. Raymond Johnson, a Professional Engineer registered in the State of Utah and Director of the Tooele County Department of Engineering stated in a letter dated March 3, 2000 and addressed to Mr. William Sinclair (Executive Director of the Utah Division of Radiation Control) that "There are no permanent dwellings, residential areas, or other habitable structures, including schools, churches, and historic structures within five miles of Section 32, T1S, R11W." Section 32, T1S, R11W is the location of the proposed Envirocare facility.

Because of his training, experience, and position with Tooele County, the Department considers Mr. Johnson to be an authoritative source for information of this type. Therefore, the Department accepts his statement as definitive.

A search of the National Register Information System operated by the National Park Service demonstrates that no historic structures are described as being near Clive, Utah. The apparent nearest historical structure is the GAPA Launch Site and Blockhouse located northeast of Knolls, Utah. Earlier submittals by others reveal that this site is located in the southwest corner of Section 9, T1N, R12W. Section 9, T1N, R12W is over 8 miles north-northwest of the proposed site. Moreover, no habitable structures exist at this location.

Thus, the Department concludes that the proposed facility will not be located within five miles of existing permanent dwellings, residential areas, or other habitable structures, including schools, churches, and historic structures.

REFERENCES:

"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Section 313-25-3-3(a)(ix); Envirocare of Utah, Inc.; January 5, 2000.

"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Appendices A and I; Envirocare of Utah, Inc.; January 5, 2000.

"Siting Criteria and Pre-Licensing Plan Application; Responses to Interrogatories and Revised Text for the Grassy Mountain Facility, Tooele County, Utah"; Laidlaw Environmental Services, Inc.; Revision 1, November 10, 1997.

FINDING:

EU-S15: The Pre-Licensing Plan Approval Application does adequately demonstrate that the treatment and disposal facilities are not located within five miles of surface waters, including intermittent streams, perennial streams, rivers, lakes, reservoirs, and wetlands. **(URCR R313-25-3(3)(a)(x))**

BASIS:

Inspection of USGS orthophotomaps (topographic maps) that include all land areas within five miles of the proposed site reveal the presence of no perennial streams, rivers, lakes, or reservoirs in that area. These same maps do, however, indicate several features that are either intermittent streams or narrow washes in this area, using USGS definitions for symbols used in its maps. Because the site may not be sited within five miles of any intermittent stream but may be sited without regard to the presence of narrow washes, the USGS maps are not conclusive on the existence of intermittent streams. Therefore, the Division directed Envirocare to provide additional information to resolve the question.

To resolve this ambiguity, the applicant procured the services of Mr. Ronald K. Gaynor, a Professional Civil Engineer, registered in the States of Utah, Kentucky, Ohio, and North Carolina. He is knowledgeable of surface water phenomena by virtue of his training and experience. By reason of his training, experience, and professional registration, the Department judges him to be an authoritative source and his statements to be authoritative.

On March 7, 2000, Mr. Gaynor inspected and reported his findings of at least 22 surface water drainage features within five miles of the proposed facility. Mr. Gaynor represented that he had inspected all surface water drainage features in this area. The inspection involved observation from a helicopter at low altitudes and surface walkovers as he deemed appropriate.

Mr. Gaynor's results are summarized as follows:

> All of the drainage channels inspected appear to be typical erosion features created by periodic runoff from the upgradient mountain fronts and hilly areas. Even though this inspection was performed in the wettest season of the year, with 0.10 inch precipitation in the previous 24 hours, all of the channels were dry. None of the channels extended into the mountains and all appeared to be experiencing episodic erosion at their uppermost extents as they gradually advance toward the source of runoff. At their lower most extents, they all disappear before reaching the valley floor as their storm induced flows dissipate into the soil and through evaporation.
>
> There was no evidence that flow in any of the channels is ever sustained through bank seepage and base flow from ground water. No significant vegetation was present in any greater density around the drainage features than across the desert in general. It was also observed that, although there are many cattle grazing in the area, there was no evidence of cattle having found and used any of the surface water features for drinking, at any time in the past.

> It is my professional opinion that all of the surface water drainage features within 5 miles of the Envirocare site are ephemeral in nature and consist of dry washes and arroyos which may contain water only in immediate response to episodic precipitation, or snow melt. There is no evidence that perennial or intermittent streams exist within this area

Accepting Mr. Gaynor's statement as authoritative, the Department concludes that no intermittent streams exist within five miles of the proposed site.

Mr Gaynor also contacted Mr. Anthony Vigil of the U.S. Army Corps of Engineers in Bountiful, Utah to determine the presence of any wetlands in the vicinity of the proposed site. Mr. Vigil also referred Mr. Gaynor to the U.S. Fish & Wildlife Service which maintains the National Fish & Wildlife Wetlands Inventory.

The Department considers Mr. Vigil by virtue of his position with the U.S. Army Corps of Engineers to be an authoritative source for information to determine whether wetlands exist within five miles of the proposed site. The Department also recognizes the U.S. Fish & Wildlife Service as an authoritative source of the same information.

Mr. Vigil checked his records and confirmed that no wetlands delineations had been performed in Tooele county west of Grantsville, UT. The applicant provided a copy of a map from the Fish & Wildlife Wetlands Inventory database showing no wetlands data within about 10 miles of the proposed site. Since the wetlands inventory lacks data within five miles of the proposed facility, and based on Mr. Vigil's statement, the Department concludes that no wetlands exist within five miles of the proposed site.

Thus, the Department concludes that located the proposed facility will not be located within five miles of surface waters, including intermittent streams, perennial streams, rivers, lakes, reservoirs, and wetlands.

REFERENCES:

"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Section 313-25-3-3(a)(x); Envirocare of Utah, Inc.; March 16, 2000.
"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Appendix J; Envirocare of Utah, Inc.; March 16, 2000.

FINDING:

EU-S16: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within 100 feet of uranium mill tailings. **(URCR R313-25-3(3)(a)(xi))**

BASIS:

Uranium mill tailings are disposed in the vicinity of the proposed disposal facility. Uranium mill tailings have been imported to the Envirocare facility from various offsite cleanup locations and placed in a designated landfill unit. In addition, the U.S. DOE in conjunction with the State of Utah placed uranium mill tailings in a disposal cell located approximately 250 feet (76 meters) east of the proposed Class B/C site at the closest point.

The application provides Drawing D-99150-CV-010 from the previous License Amendment Application to show the location of the proposed Class B/C disposal area relative to the uranium mill tailing disposal areas [Vitro and 11e(2)]. The drawing adequately demonstrates that the proposed facility is not located within 100 feet of uranium mill tailings.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

Final Environmental Impact Statement, Remedial Action at the Former Vitro Chemical Company Site, South Salt Lake, Salt Lake County, Utah, DOE/EIS-0099-F, U.S. DOE, July 1984.

Figure B.8, RCRA Part B Permit Application, Envirocare of Utah, March 30, 1990.

Drawing D-99150-CV-010, Application for License Amendment, Envirocare of Utah, November 1, 1999 (copy in Appendix T, Pre-Licensing Plan Approval Application).

FINDING:

EU-S17: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within 1,000 feet of archeological sites to which adverse impacts cannot reasonably be mitigated. **(URCR R313-25-3(3)(a)(xii))**

BASIS:

A Cultural Resource Inventory was performed on the square mile (Section 32, Township 1 South, Range 11 West) including the Envirocare site by Archaeological-Environmental Research Corporation in August, 1981. The qualifications of the archaeological contractor to conduct the study are presented in a letter from the Utah Division of State History in Appendix K. A copy of the archaeological contractor's report, including findings and recommendations, are also presented in Appendix K. The report presents adequate demonstration that the facility is not located within 1,000 feet of archeological sites to which adverse impacts cannot reasonably be mitigated.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria

"Cultural Resource Inventory of One Square Mile in the Clive Locality of Tooele County, Utah," Archaeological-Environmental Research Corporation, August 31, 1981 (copy in Exhibit B.5, Appendix K, Pre-Licensing Plan Approval Application).

FINDING:

EU-18: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not underlain by recharge zones of aquifers containing ground water which has a total dissolved solids content of less than 10,000 mg/L. **(URCR R313-25-3(3)(a)(xiii))**

BASIS:

The application presents the following pertinent information:

There are two aquifers that underlie the Envirocare facility:

- a shallow unconfined aquifer, and
- a deeper confined aquifer.

The shallow unconfined aquifer extends no deeper than about 40 feet below grounds surface. The water quality is poor, with total dissolved solids (TDS) in the range of 24,000 to 61,000 mg/l. The top of the deeper confined aquifer is about 40 to 45 feet below ground surface. The water quality in this aquifer is slightly better than in the shallow unconfined aquifer, with TDS of about 20,000 mg/l. The state Groundwater Quality Protection Regulations classify both the unconfined and confined aquifers as Class IV. This is equivalent to EPA's Class III. Since both aquifers have TDS well above 10,000 mg/l, the Envirocare site is not in a recharge zone of an aquifer with TDS of less than 10,000 mg/l.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000.

Envirocare License Renewal Application, Section 3.6, Groundwater Hydrology, March 16, 1998 (copy in Appendix L, Pre-Licensing Plan Approval Application).

FINDING:

EU-S19: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located within or underlain by drinking water source protection areas designated by the State Drinking Water Committee. **(URCR R313-25-3(3)(a)(xiv))**

BASIS:

A memorandum dated 4/24/00 from Kate Johnson, Environmental Scientist for the State of Utah, Division of Drinking Water, indicates that 'it does not appear that the facility is within the protection zones for any public wells that are in use.' The Division of Radiation Control accepts this professional opinion as adequate evidence that the facility is not located within or underlain by drinking water source protection areas designated by the State Drinking Water Committee."

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, January 5, 2000.

Memorandum from Dan Shrum, March 7, 2000 (Copy in Appendix M, Pre-Licensing Plan Approval Application).

FINDING:

EU-S20: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located in areas above or underlain by aquifers containing ground water which has a total dissolved solids content of less than 500 mg/l and which aquifers do not exceed state ground water standards for pollutants. **(URCR R313-25-3(3)(b)(i))**

BASIS:

The application shows that the levels of total dissolved solids (TDS) in both the shallow unconfined aquifer and the underlying confined aquifer far exceed 500 mg/L. The TDS content of the shallow unconfined aquifer ranges between 24,000 and 61,000 mg/l. The deeper confined aquifer is also saline and has a TDS content of about 20,000 mg/l. Therefore, the site is not located in an area above or underlain by any aquifer with a TDS content of less than 500 mg/l.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000.

Envirocare License Renewal Application, Section 3.6, Groundwater Hydrology, March 16, 1998 (copy in Appendix L, Pre-Licensing Plan Approval Application).

FINDING:

EU-S21: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located in areas above or underlain by aquifers containing ground water which has a total dissolve solids content between 3,000 and 10,000 mg/L when the distance from the surface to the ground water is less than 100 ft. **(URCR R313-25-3(3)(b)(ii))**

BASIS:

The applicant has shown that at the Envirocare facility the distance from the surface to groundwater is less than 100 feet, and therefore this criterion applies. The shallow unconfined aquifer is approximately 25 to 35 feet below the ground surface and the top of the confined aquifer is about 40 to 45 feet below the ground. However, the application shows that the levels of total dissolved solids (TDS) in both of these aquifers exceed 10,000 mg/l based on 1991-1995 data from LARW/11e.(2) monitor well data presented in Appendix D of the Renewal Application and Quarterly LARW monitoring reports and earlier data presented in Table B.2 of the RCRA Part Permit Application and referenced to the Vitro EIS. The TDS content of the shallow unconfined aquifer ranges between 24,000 and 61,000 mg/l. The deeper confined aquifer is also saline and has a TDS content of about 20,000 mg/l. Therefore, the site is not located in an area above or underlain by any aquifer with a TDS content between 3,000 and 10,000 mg/l.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000.

Envirocare License Renewal Application, Section 3.6, Groundwater Hydrology, March 16, 1998 (copy in Appendix L, Pre-Licensing Plan Approval Application).

RCRA Part B Permit Application, Envirocare of Utah, Inc., March 30, 1990.

FINDING:

EU-S22: The Pre-Licensing Plan Approval Application does adequately demonstrate that the treatment and disposal facilities are not located in areas where water, gas, or oil are extensively withdrawn. **(URCR R313-25-3(3)(b)(iii))**

BASIS:

Mr. Dan Shrum is a hydrogeologist for Envirocare and a Certified Geologist with the State of Wyoming. By virtue of his training, experience, and certification, Mr. Shrum is an acceptable source of information to assess the extent of water, oil, and gas withdrawal in the vicinity of the proposed site.

The applicant has provided a memorandum from Mr. Shrum summarizing the results of a water rights search he had conducted using the Utah Division of Water Rights web page and submitted to the Department. The results indicate a single current water right in Sections 28 through 33 of T1S R11W and Sections 4 through 6 of T2S R11. This water right was not accessed in 1999. An additional water right was identified 3.5 miles east of the proposed site.

Mr. Shrum states his opinion that:

> ". . . extraction of groundwater from either well [identified above] will have little of no effect of groundwater movements beneath the Envirocare facility. This is because: 1) the wells are screened approximately 300 feet below ground surface and the groundwater of concern beneath the Envirocare facility is shallow (approximately 30 feet below ground surface); 2) there are numerous silt and clay layers that separate these two water bearing units; and 3) the wells are located at least 3 miles northwest and east of the facility."

The Department recognizes the Utah Division of Oil, Gas and Mining (DOGM) is an authoritative source of information about oil and gas wells within the State of Utah.

The applicant investigated the existence of oil and/or gas wells in the vicinity of the proposed site by examining the files of the DOGM of March 7, 2000. In this investigation, the applicant identified no active oil or gas wells on record in Tooele County. DOGM records contain the following additional information of oil and gas wells in Tooele County:

> One research-only, no production well in Section 17 of T7S R4W (many miles for the proposed site).
> One well in Section 22 of T8S R3W where operations were suspended before drilling was completed.
> Seventeen wells have been abandoned in various areas of the county, none of which are within five miles of the proposed site.

Based on Mr. Shrum's opinion and on the records maintained the Utah division of Oil, Gas and Mining, the Department concludes that the proposed site is not located in areas where water, gas, or oil are extensively withdrawn.

REFERENCES:

"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Section R313-25-3(3)(b)(iii); Envirocare of Utah, Inc.; March 16, 2000.

"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Appendix M and Appendix N; Envirocare of Utah, Inc.; March 16, 2000.

FINDING:

EU-S23: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located in areas above or underlain by weak unstable soils, including soils that lose their ability to support foundations as a result of hydrocompaction, expansion, or shrinkage. **(URCR R313-25-3(3)(b)(iv))**

BASIS:

Appendix J from Envirocare's License Renewal Application references soil testing and analyses for settlement, slope stability, and liquefaction potential. The findings of the analyses are that the ground settlement potential is no greater than 1.1 feet, which is not considered excessive. Slope stability factors of safety are calculated to be 2.3 for static conditions and 1.25 for earthquake conditions (magnitude 6.5). The evaluation of liquefaction potential utilized the method of Seed et al., 1985, as referenced in the "Liquefaction" section in Appendix J. Liquefiable layers exist at depths greater than 35 feet, but are considered sufficiently deep that they would not affect the stability of the site.

The data indicate that the upper 35 feet of relatively dense sediments at the site are non-liquefiable. Therefore, potential occurrences of liquefaction at depths greater than 35 feet might cause some minor ground settlement; however, this should not result in gross site or embankment instability because few liquefiable sediments are distributed locally and deeply from the surface of the natural grade.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Slope Stability," Appendix J, Envirocare License Renewal Application, March 16, 1998 (copy in Appendix O, Pre-Licensing Plan Approval Application).

FINDING:

EU-S24: The pre-licensing plan approval application does adequately demonstrate that the treatment and disposal facilities are not located in areas underlain by karst terrains. **(URCR R313-25-3(3)(b)(v))**

BASIS:

The application cites previous findings in Appendix O (containing information from Envirocare's license renewal application) as showing that there are no underlying karst features in the area of the site. Section 3.4.1.3 of the renewal application cites a 1995 Utah Geological Survey statement that the site is not susceptible to geologic hazards other than ground shaking due to potential earthquake activity. The 1974 regional geology study by Stephens indicates the basin sediments of the area are unconsolidated to semi-consolidated Quaternary lacustrine Lake Bonneville deposits 800 to 1000 feet thick. Subsurface logs from monitor well SC-1 in the center of Section 32 show the lacustrine deposits extend to at least 250 feet beneath the facility. Deeper Tertiary and Quaternary valley fill (clays, sands, and gravels) deposits are about 300 to 600 feet thick. None of the documents reviewed suggests the presence of karst materials, ground water sources in karst, or surface features that reflect the presence of karst materials in the vicinity of the site. The application therefore demonstrates adequately that the site is not located in areas underlain by karst terrains by showing underlayment by other, non-karstic materials.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria

Section 3.4.1.3, Envirocare License Renewal Application, March 16, 1998 (copy in Appendix O, Pre-Licensing Plan Approval Application).

FINDING:

EU-S25: The pre-licensing plan approval application does adequately demonstrate that incinerators associated with land disposal facilities are not located above aquifers containing ground water which has a total dissolved solids content below 3,000 mg/L. **(URCR R313-25-3(4))**

BASIS:

This criterion only applies to incinerators. It does not apply to disposal facilities. Envirocare has not applied to include an incinerator in connection with its proposed Class B and C disposal facility.

REFERENCE:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

FINDING:

EU-S26: The pre-licensing plan approval application does adequately demonstrate that incinerators not associated with ground disposal facilities are not located above aquifers containing ground water which has a total dissolved solids content below 500 mg/L. **(URCR R313-25-3(4))**

BASIS:

This criterion only applies to incinerators. It does not apply to disposal facilities. Envirocare has not applied to include an incinerator in connection with its proposed Class B and C disposal facility.

REFERENCE:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

FINDING:

EU-S27: The pre-licensing plan approval application does adequately demonstrate that land disposal facilities associated with incinerators are not located within a distance to existing drinking water wells and watersheds for public water supplies of one year's ground water travel time plus 1,000 feet. **(URCR R313-25-3(5))**

BASIS:

This criterion only applies to incinerators. It does not apply to disposal facilities. Envirocare has not applied to include an incinerator in connection with its proposed Class B and C disposal facility.

REFERENCE:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

FINDING:

EU-S28: The pre-licensing plan approval application does adequately demonstrate that land disposal facilities not associated with incinerators are not located within a distance to existing drinking water wells and watersheds for public water supplies of five years' ground water travel time plus 1,000 feet. **(URCR R313-25-3(5))**

BASIS:

The application shows that the groundwater flow velocity in the shallow unconfined aquifer varies from 0.02 feet/yr to about 2 feet per year (License Renewal Application, March 16, 1998). Other data in the application indicate a maximum groundwater velocity of 13 feet per year (RCRA Part B permit Application, March 30, 1990). The data from the License Renewal Application are based on a series of slug tests performed at the site. Using the upper value of 2 feet per year, five years' ground water travel plus 1,000 feet is about 1,010 feet. Using the older data from the RCRA Part B Permit Application, five years' groundwater travel plus 1,000 feet is about 1,065 feet.

A groundwater usage report by Dan Shrum indicates that the nearest active water rights are approximately 3.5 miles northwest and east of the Envirocare facility, and are not used for drinking water. This is well beyond the 1,065-foot criterion.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Groundwater Gradients and Velocities, Section 3.6.2.3, Envirocare License Renewal Application, March 16, 1998 (copy in Appendix L, Pre-Licensing Plan Approval Application).

"Designated Drinking Water Source Protection Areas," Section B-3a(11) of Envirocare's RCRA Part B Permit Application, March 30, 1990 (copy in Appendix M, Pre-Licensing Plan Approval Application).

Daniel B. Shrum letter to Robert Herbert, Feb. 18, 2000, and Dan Shrum March 7, 2000 memo (copy in Appendix M, Pre-Licensing Plan Approval Application).

FINDING:

EU-S29: The pre-licensing plan approval application does include hydraulic conductivity and other information necessary to adequately estimate the ground water velocity. **(URCR R313-25-3(6))**

BASIS:

Hydraulic conductivities were determined from a series of slug tests conducted in 1997 and are summarized in Appendix L of the application. The horizontal hydraulic conductivity in the unconfined aquifer averages about 0.0003 cm/s. The conductivity ranged from 2.2×10^{-6} cm/s to 0.0043 cm/s. In the deeper confined aquifer the hydraulic conductivity is about 0.0005 cm/s.

Hydraulic gradients at the site range from 0.0002 to 0.001 in the shallow aquifer with the average gradient approximately 0.0004. Porosity measurements have been documented for the unconfined aquifer units. Together, this information is adequate to estimate the groundwater velocity.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000.

"Groundwater Flow Regime," Section 3.6.2 in Envirocare License Renewal Application, March 16, 1998 (copy in Appendix L, Pre-Licensing Plan Approval Application).

"Final Slug Test Results" prepared by Adrian Brown Consultants, June 18, 1997 (copy in Appendix LL of the Envirocare License Renewal Application, March 16, 1998; referenced in Appendix L, Pre-Licensing Plan Approval Application).

FINDING:

EU-S30: The pre-licensing plan approval application does include the results of studies adequate to identify the presence of ground water aquifers in the area of the proposed site and to assess the quality of the ground water of all aquifers identified in the area of the proposed site. **(URCR R313-25-3(7))**

BASIS:

The application contains Sections 3.6 and 3.7 of the 1998 license renewal application, which provided a good summary description of the ground water aquifers and ground water quality in the vicinity of the Envirocare site. These sections contain numerous citations to specific studies conducted by the applicant's hydrogeologic contractors as well as independent studies by DOE and others. The applicant has demonstrated use of both historical and recent ground water characterization data to allow for comparison over time.

While the referenced appendices and attachments from the 1998 application were not included and full citations for the referenced studies were not always given, the summarized information in Appendix L of this submittal was sufficient to demonstrate that the required studies have been performed and that the data are current.

REFERENCES:

Sections 3.6 and 3.7, Radioactive Material License Renewal Application, Envirocare of Utah, March 16, 1998 (copy in Appendix L, Pre-Licensing Plan Approval Application).

Sections 2.2.1, Safety Evaluation Report for Envirocare's License Renewal Application, Rogers & Associates Engineering, October 1998 (copy in Appendix P, Pre-Licensing Plan Approval Application).

Final Environmental Impact Statement, Remedial Action at the Former Vitro Chemical Company Site, South Salt Lake, Salt Lake County, Utah, DOE/EIS-0099-F, U.S. DOE, July 1984.

Disposal Site Characterization Report for the Uranium Mill Tailings Site, DOE, 1985.

FINDING:

EU-S31: The pre-licensing plan approval application does adequately demonstrate that vadose zone or other near-surface monitoring, as required by the Executive Secretary, has been conducted. **(URCR R313-25-3(8))**

BASIS:

The Executive Secretary has not required vadose zone or other near-surface monitoring at this Site. Therefore this requirement is not applicable. The Executive Secretary confirmed this fact in a March 2, 2000 meeting between the Division and Envirocare representatives.

REFERENCES:

Notes from meeting at Utah Division of Radiation Control, March 2, 2000.

FINDING:

EU-S32: The pre-licensing plan approval application does adequately demonstrate the availability and adequacy of emergency services, including those for medical and fire response. **(URCR R313-25-3(9)(a))**

BASIS:

The application states that "Envirocare maintains adequate emergency medical and fire response capabilities for responding to any incident at the Facility." The application and the 1997 Contingency Plan contain up-to-date listings of emergency response organizations available should the need arise. Copies of internal communication discuss emergency response capabilities of some of these organizations. The Toole County Sheriff's Office Hazardous Material Division is confident that it is "trained, experienced, and available for any anticipated emergency" at the Envirocare site. In addition, the UDRC and the UDEQ maintain capabilities to provide response to emergencies at the site, including those involving radioactive materials.

Section B-3c(1) of the RCRA permit application references the Site Inspection and Hazard Prevention Plan, which likely contains some relevant information, but this document was not provided for review.

The Contingency Plan generally addresses emergencies associated with fires, explosions, and releases, but lacks specifics on each types of emergency. However, the application states that the Contingency Plan is under revision and will be submitted with Envirocare's license application to amend the Radioactive Materials License to allow disposal of Class B and C waste. Some expected changes to the Contingency Plan, which were apparently drafted in April 1997, were provided that discusses emergency response procedures related to medical emergencies in more detail. The October 1997 revision of the Contingency Plan does not contain these changes.

The applicant's response to Interrogatory EU-S32-1 discusses Envirocare's on-site emergency response procedures in somewhat more detail than provided in the 1997 Contingency Plan. The response also specially addresses hazards associated with Class B & C wastes. This information should also be included in the revised Contingency Plan along with reference to relevant site procedures and training requirements.

When the next revision of the Contingency Plan is available, it needs to be reviewed to assure that expected changes were made.

REFERENCES:

Contingency Plan, Attachment II-6 to RCRA Part B Permit Application, Envirocare of Utah, revised October 17, 1997.

Letter from Vernon Andrews regarding status of emergency response agreements and Contingency Plan changes, April 9, 1997.

Letter from Harry Shinton regarding response capabilities of Tooele County, March 13, 1997.
Email from Harry Shinton regarding response capabilities of Tooele County, March 3, 2000.
Section B-3c(1), RCRA Part B Permit Application, Envirocare of Utah, March 30, 1990.
Utah Division of Radiation Control Emergency Response Plan, September 1988.
Utah Department of Environmental Quality Emergency and Disaster Response Plan, March 1996.

FINDING:

EU-S33: The pre-licensing plan approval application does provide adequate evidence that the applicant has coordinated emergency response plans with local and regional emergency response resources. **(URCR R313-25-3(9)(a))**

BASIS:

The 1997 Contingency Plan states that copies of the plan (and revisions) will be provided to each listed response agency. The applicant has also provided copies of internal communication discussing emergency response coordination efforts with AirMed, the University of Utah Hospital, and the Toole County Sheriff's Office. This 1997 memo also states that copies of the Contingency Plan were provided to these agencies. Additional communication with the Toole County Sheriff's Office Hazardous Material Division demonstrates that this response organizations is confident that it is "trained, experienced, and available for any anticipated emergency" at the Envirocare site. The pre-licensing plan approval application itself demonstrates coordination of emergency response plans with the Utah Division of Radiation Control, which has emergency response resources for incidents involving radioactive materials.

The application states that "Envirocare will provide any additional coordination details with its revised Contingency Plan submitted with its amendment to the Radioactive Materials License for B and C waste." Some expected changes to the Contingency Plan, apparently drafted in April 1997, discuss emergency response procedures for coordinating with the University of Utah Hospital and AirMed. These "changes" also address the need to decontaminate victims before transport by AirMed. The October 1997 revision of the Contingency Plan does not contain these changes. Therefore, when the next revision plan is available, it needs to be reviewed to assure that expected changes were made.

REFERENCES:

Contingency Plan, Attachment II-6 to RCRA Part B Permit Application, Envirocare of Utah, revised October 17, 1997.

Memo from Vernon Andrews regarding status of emergency response agreements and Contingency Plan changes, April 9, 1997.

Letter from Harry Shinton regarding response capabilities of Toole County Sheriff's Office, March 13, 1997.

Email from Harry Shinton regarding Hazardous Materials Response Team capabilities of Toole County Sheriff's Office, March 3, 2000.

Utah Division of Radiation Control Emergency Response Plan, September 1988.

FINDING:

EU-S34: The pre-licensing plan approval application does adequately address plans for responding to emergencies at the site. **(URCR R313-25-3(9)(b))**

BASIS:

The Envirocare Contingency Plan covers site emergencies in the event of fires, explosions, and releases. The plan addresses:

- plan implementation
- access to corporate resources
- arrangements with local response organizations
- list of emergency equipment
- evacuation plan
- duties of Emergency Coordinator
- conditions for plan revision/amendment

The plan contains a list of six basic emergency procedure steps and the duties of the Emergency Coordinators. The Contingency Plan contains layouts for five different buildings that house different site operations. It is likely that response procedures vary depending on which building is involved because the hazards are probably different.

Section B-3c(2) of the RCRA permit application states that "Envirocare employs and trains facility personnel to be familiar with properties of the material to be accepted for management."

The application states that the Contingency Plan is under revision and will be submitted with Envirocare's license application to ament the Radioactive Materials License to allow disposal of Class B and C waste. However, since this revised plan was not available during this review, its adequacy for the operation of a low-level radioactive waste disposal facility could not be assessed.

REFERENCES:

Contingency Plan, Attachment II-6 to RCRA Part B Permit Application, Envirocare of Utah, revised October 17, 1997.
Section B-3c(2), RCRA Part B Permit Application, Envirocare of Utah, March 30, 1990.

FINDING:

EU-S35: The pre-licensing plan approval application does adequately address plans for responding to emergencies involving the transport of waste within the state. **(URCR R313-25-3(9)(b))**

BASIS:

Neither the 1997 Contingency Plan nor emergency response section of the RCRA permit application contain any provisions for responding to off-site emergencies involving the transport of waste within the state. The application states that Envirocare is not required to provide response to off-site emergencies and that the "responsibility for emergency response to hazardous (including radioactive) material transportation incidents rests with state and local emergency response agencies." Emergency response plans of the UDRC and the UDEQ show that these agencies maintain capabilities to respond to emergencies involving the transport of radioactive waste within the state. The application does volunteer, however, that "Envirocare is available to respond to off-site emergencies related to waste shipments destined for the Envirocare site."

The Contingency Plan procedure calls for the plan to be implemented upon discovery of a fire, explosion, or release at the Envirocare facility. This would include emergencies involving the transport of waste on-site.

REFERENCES:

Contingency Plan, Attachment II-6 to RCRA Part B Permit Application, Envirocare of Utah, revised October 17, 1997.
Section B-3c, Emergency Response and Transportation Safety, RCRA Part B Permit Application, Envirocare of Utah, March 30, 1990.
Utah Division of Radiation Control Emergency Response Plan, September 1988.
Utah Department of Environmental Quality Emergency and Disaster Response Plan, March 1996.

FINDING:

EU-S36: The pre-licensing plan approval application does adequately show proposed routes for transportation of radioactive wastes within the state. **(URCR R313-25-3(9)(c))**

BASIS:

The applicant has described in text the proposed routes based on 1990 information for transportation of the radioactive and mixed waste to the Envirocare site. Table B.4 identifies the highway transportation routes to Envirocare, and the 1995 Utah highway map shows the locations of the various roads. The addition of I-215, not identified in the original version of Table B.4 in the RCRA application, is recognized by revised text.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Official Highway Map", Utah Department of Transportation, 1995 (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Proposed Routes of Transportation", Section B-3c(3) from Envirocare's RCRA Part B Permit Application, March 30, 1990 (copy in Appendix S, Pre-Licensing Plan Approval Application).

FINDING:

EU-S37: The pre-licensing plan approval application does adequately demonstrate that weight restriction on roads or bridges for proposed radioactive waste transportation routes will not be exceeded. **(URCR R313-25-3(9)(c))**

BASIS:

The application indicates that the proposed routes of transportation in the state of Utah will be on Interstate highways (I-15, I-70, I-80, I-84, or I-215) or U.S. highways (Routes 6, 191, or 666) except for the 2.5-mile segment of county road leading from Interstate-80 to the Envirocare Site. The application further indicates (Bob English memo) that weight restrictions for Interstate and U.S. highways and bridges will be satisfied by weight checks at Utah Ports of Entry. Regarding the 2.5-mile county road segment, load limits imposed by UDOT on Interstate and U.S. routes are applicable, according to Raymond Johnson, Director of the Tooele County Department of Engineering. The Port-of-Entry checks will therefore assure weight limit compliance on the county road also. The application indicates that waste shippers will have to comply with DOT regulations in 49 CFR, which also include weight restrictions applicable to rail bridges along the proposed radioactive waste transportation routes."

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Official Highway Map", Utah Department of Transportation, 1995 (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Proposed Routes of Transportation", Section B-3c(3) from Envirocare's RCRA Part B Permit Application, March 30, 1990 (copy in Appendix S, Pre-Licensing Plan Approval Application).

"EU-S44 Transportation Routes and Load Limits," Memo from Bob English, March 3, 2000, and attachments of UDOT regulations (copy in Appendix S, Pre-Licensing Plan Approval Application).

Telephone conversation with Joyce Hogan, March 8, 2000, quoting Mr. Raymond Johnson, Tooele County Department of Engineering (referenced in Appendix S, Pre-Licensing Plan Approval Application).

FINDINGS:

EU-S38: The pre-licensing plan approval application does adequately demonstrate that the proposed facility will not pose an unacceptable impact or risk of harm to inhabited areas. **(URCR R313-25-3(9)(c))**

EU-S39: The pre-licensing plan approval application does adequately address risks to inhabited areas, including both residential and non-residential areas. **(URCR R313-25-3(9)(c))**

BASIS:

The Pre-Licensing Plan indicates that the proposed facility will not pose significant risks to inhabited areas. No permanent dwellings, residential areas, inhabitants, churches, schools or historic structures are located adjacent to the facility or in areas where Envirocare of Utah Inc. will have primary responsibility for waste and waste shipments (i.e., Envirocare of Utah Inc. owns its own rail spur, so no roadway is required to haul waste from a rail siding to the site). Operational impacts to the nearest inhabitants should be minimal, as the Plan indicates the nearest permanent inhabitants are located 15 to 20 miles to the northeast. Projected growth for the area does not indicate residencies will be established within 15 to 20 miles of the site. Within five miles of the facility, some employees of Envirocare of Utah Inc. and United States Pollution Control Inc. (USPCI) live in temporary housing (i.e., recreational vehicles, trailer homes and/or mobile trailer home). These employees are located near the facility in order to oversee the required security at the site. The land within a ten-mile radius of the site is public domain administered by the Bureau of Land Management (BLM). The area immediately surrounding the Envirocare site was designated by Tooele County as Hazardous Industrial District MG-H, and as such, land use is limited to heavy industrial processes and industry dealing with hazardous wastes.

The adequacy of the plan for showing that risks are within acceptable ranges rests on the limitation of the risk definition to populations where the company has primary control (i.e., within their boundaries). The Plan appropriately does not address the broader question of risks along the Union Pacific Rail and interstate highway transportation corridors throughout the State of Utah, over which the Applicant has no authority or responsibility. Transportation safety and Utah Regulations regarding the shipping of radioactive waste in the State of Utah have been provided.

REFERENCES:

Letter from J. Raymond Johnson, P.E., March 3, 2000, to William Sinclair, DEQ (copy in Appendix A, Pre-Licensing Plan Approval Application)

Commercial Low-Level Radioactive Waste Transportation Liability and Radiological Risk, DOE/LLW-153, August 1992, U.S. DOE (copy in Appendix S, Pre-Licensing Plan Approval Application)

Utah Regulations for Permitted Vehicles, January 2000 (copy in Appendix S, Pre-Licensing Plan Approval Application)

Permanent Dwellings, Residential Areas and Incompatible Structures, Section B-3a(12),from Envirocare's RCRA Part B Permit Application, 3/30/90 (copy in Appendix I).

Proposed Routes of Transport, Section B-3c(3), R450-3-23(c)(3), from Envirocare's RCRA Part B Permit Application 3/30/90 (copy in Appendix S).

Geography, Demography and Future Development, Section 3.1, from License Renewal Application 3/16/98 (copy in Appendix I).

FINDING:

EU-S40: The pre-licensing plan approval application does adequately identify the width, condition, and types of roads to be used during transportation. **(URCR R313-25-3(9)(c))**

BASIS:

The application indicates that within Utah, only Interstate highways (I-15, I-70, I-80, I-84, or I-215) or U.S. highways (Routes 6, 191, or 666) will be used for truck transport in addition to the 2.5-mile segment of county road leading from Interstate-80 to the Envirocare Site. By reference to Interstate and U.S. Highways and associated UDOT regulations for transport on the highways, the application explicitly identifies the types of roads and implicitly identifies the standard widths and conditions designed and maintained for these roads. For the county road segment, the application indicates it is paved with asphaltic concrete, it is 24-feet wide, and is maintained in good, serviceable condition.

For rail transport, existing rail lines and Envirocare's rail siding will be used for shipments into the site. Envirocare considers that no modifications are necessary with respect to the proposed Class B/C waste shipments.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Official Highway Map", Utah Department of Transportation, 1995 (copy in Appendix A, Pre-Licensing Plan Approval Application).

"Proposed Routes of Transportation", Section B-3c(3) from Envirocare's RCRA Part B Permit Application, March 30, 1990 (copy in Appendix S, Pre-Licensing Plan Approval Application).

"EU-S44 Transportation Routes and Load Limits," Memo from Bob English, March 3, 2000 (copy in Appendix S, Pre-Licensing Plan Approval Application).

"Utah Regulations for Permitted Vehicles," UDOT, January, 2000 (copy in Appendix S, Pre-Licensing Plan Approval Application).

FINDING:

EU-S41: The pre-licensing plan approval application does adequately address any necessary roadside development on proposed waste transportation routes. **(URCR R313-25-3(9)(c))**

BASIS:

The application states that "Envirocare has no plans for any roadside development on the proposed waste transportation routes." This statement implies that existing roadside development is adequate. Unless the State of Utah determines that there is a need for roadside development to support the operations covered by this application, the applicant's declaration is accepted at face value.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

FINDING:

EU-S42: The pre-licensing plan approval application does adequately address seasonal and climatic factors which may affect safety. **(URCR R313-25-3(9)(c))**

BASIS:

The application refers to the design and maintenance of Interstate routes used for truck transportation to afford safe transport during most weather extremes. It also identifies the use of lime on on-site roads to help prepare them for winter travel and the availability of sufficient heavy earthwork equipment at the site to clear away excess snow and ice if necessary to maintain adequate access.

The application indicates that wind dispersal is not a concern because all waste materials to be received at the proposed facility will be containerized. High winds are said to possibly curtail site operations due to physical hazards involving heavy equipment such as cranes. Envirocare expects to have formal restrictions placed on operations based on weather conditions.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Proposed Routes of Transportation", Section B-3c(3) from Envirocare's RCRA Part B Permit Application, March 30, 1990 (copy in Appendix S, Pre-Licensing Plan Approval Application).

"EU-S44 Transportation Routes and Load Limits," Memo from Bob English, March 3, 2000, and attachments of UDOT regulations (copy in Appendix S, Pre-Licensing Plan Approval Application).

FINDING:

EU-S42a: The pre-licensing plan approval application does adequately address alternate emergency access to the facility. **(URCR R313-25-3(9)(c))**

BASIS:

The application includes in the Contingency Plan a map showing the evacuation routes from the site. The road that accesses the Envirocare facility connects to Interstate-80 a few miles to the north, and accesses public and Air Force bombing range lands to the south. For medical emergencies, air evacuation is available as described in the letter from Jeffrey Gardner.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Contingency Plan," Attachment II-6 to RCRA Part B Permit, November 30, 1990 (copy in Appendix Q, Pre-Licensing Plan Approval Application).

"Status of Emergency Response Agreements," Letter from Jeffrey Gardner, April 9, 1997 (copy in Appendix Q, Pre-Licensing Plan Approval Application).

FINDING:

EU-S43: The pre-licensing plan approval application does adequately address the type, size, and configuration of vehicles proposed to haul wastes. **(URCR R313-25-3(9)(c))**

BASIS:

The application gives brief descriptions of the vehicles that Envirocare expects to typically haul wastes to the site. Waste will be hauled via either highway or rail. The vehicles will apparently be standard semi-tractor trailers, flat-bed trailers, and flat-bed railcars, since no indication was given that over-sized vehicles would be used. The type of waste package will dictate the type of transport vehicle selected.

An internal memo from the site's Shipping and Receiving Manager states that all shipments must abide by federal regulations governing shipping of radioactive materials. This includes US DOT requirements in 49 CFR and NRC requirements in 10 CFR. In addition, Utah regulations on weight and size limits for trucks must be adhered to unless specific authorization is received from UDOT or the Utah Highway Patrol. The memo provides excerpts from these UDOT regulations and states that shipments of "Class B & C waste could easily meet these requirements."

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

Memo from Bob English regarding regulations governing transport of radioactive materials, March 3, 2000.

Utah Regulations for Permitted Vehicles for Operators, Drivers and Enforcement Officers, Utah Department of Transportation Motor Carrier Division.

Title 10, Energy, Code of Federal Regulations.

Title 49, Transportation, Code of Federal Regulations.

FINDING:

EU-S44: The pre-licensing plan approval application does adequately address transportation restrictions on proposed waste transportation routes. **(URCR R313-25-3(9)(c))**

BASIS:

The application indicates that the proposed routes of transportation in the state of Utah will be on Interstate highways (I-15, I-70, I-80, I-84, or I-215) or U.S. highways (Routes 6, 191, or 666) except for the 2.5-mile segment of county road leading from Interstate-80 to the Envirocare Site. The application identifies general transportation restrictions (Bob English memo) for Interstate and U.S. highways and bridges, which should be satisfied by checks at Utah Ports of Entry. Regarding the 2.5-mile county road segment, limitations imposed by UDOT on Interstate and U.S. routes are applicable, according to Raymond Johnson, Director of the Tooele County Department of Engineering. Transportation restrictions related to radioactivity are specified in 10-CFR and 49-CFR, and are also enforced at Utah Ports of Entry.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Proposed Routes of Transportation", Section B-3c(3) from Envirocare's RCRA Part B Permit Application, March 30, 1990 (copy in Appendix S, Pre-Licensing Plan Approval Application).

"EU-S44 Transportation Routes and Load Limits," Memo from Bob English, March 3, 2000, and attachments of UDOT regulations (copy in Appendix S, Pre-Licensing Plan Approval Application).

Title 10, Energy, Code of Federal Regulations.

Title 49, Transportation, Code of Federal Regulations.

FINDING:

EU-S45: The pre-licensing plan approval application does adequately address the transportation means and routes available to evacuate the population at risk in the event of accident, including spills and fires. **(URCR R313025-3(9)(c))**

BASIS:

The application indicates that the primary transportation means for evacuation of the population at risk in the event of accidents consists of the personal vehicles of employees and car-pooling vans provided by employers (Envirocare and Broken Arrow). These vehicles remain on-site to transport personnel from the site at the end of the workday. Therefore, there is always sufficient capacity to evacuate all personnel from the site in case of emergency. The primary evacuation route from the site is north to Interstate 80. If this route were unavailable for some reason, evacuation could proceed to the south on the same county road.

REFERENCES:

Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste, Envirocare of Utah, Inc., January 5, 2000, Section R313-25-3 Siting Criteria.

"Contingency Plan," Attachment II-6 to RCRA Part B Permit, November 30, 1990 (copy in Appendix Q, Pre-Licensing Plan Approval Application).

FINDING:

EU-S46: The Pre-Licensing Plan Approval Application does acknowledge that cities and counties have authority for local use planning and zoning and that they may impose additional requirements. **(URCR R313-25-3(9)(10))**

BASIS:

Envirocare of Utah, Inc. acknowledges the authorized role of Tooele county in setting and enforcing local use and zoning standards. The proposed site is located in an area designated by Tooele County as a Hazardous Industrial District (MG-H), within an area zoned Manufacturing General (MG). These designations limit future land use in the area to heavy industrial applications and to industries dealing with hazardous materials and wastes. It also precludes development of residences in the area. Uses are permitted in the MG-H area only through Conditional Use Permits issued by Tooele County.

Envirocare must to obtain all necessary local permits as required by Tooele County, prior to constructing and operating the proposed facility.

REFERENCES:

"Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste"; Section R313-25-3(10); Envirocare of Utah, Inc.; January 5, 2000

REFERENCES

Env00a "Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste," Envirocare of Utah, Inc., January 5, 2000.

Env00b "Response to Interrogatories. Siting Plan Approval Application. Proposed License Amendment for Class A, B, & C LLRW Disposal," Envirocare of Utah, Inc., March 8, 2000.

Env00c "Clarifying Questions - Response to Interrogatories, Siting Plan Approval Application, Proposed License Amendment for Disposal of Class A, B, and C LLRW," Envirocare of Utah, Inc., March 13, 2000.

Env00d "Pre-Licensing Plan Approval Application for a License Amendment Allowing Disposal of Class B & C Low-Level Radioactive Waste," Envirocare of Utah, Inc., Revised March 15, 2000.

APPENDIX A

UTAH RADIATION CONTROL RULES
R313-25-3

Siting Criteria and Pre-Licensing Plan Approval for Commercial Radioactive Waste Disposal Facilities

As in effect on February 1, 2000

R313-25-3. Siting Criteria and Pre-licensing Plan Approval for Commercial Radioactive Waste Disposal Facilities.

(1) Persons proposing to construct or operate commercial radioactive waste disposal facilities, including waste incinerators, shall obtain a plan approval from the Executive Secretary before applying for a license. Plans meet the siting criteria and plan approval requirements of R313-25-3 and R313-19-3-105.

(2) The siting criteria and plan approval requirements in R313-25-3 apply to prelicensing plan approval applications.

(3) Treatment and disposal facilities, including commercial radioactive waste incinerators, shall not be located:

(a) within or underlain by:

(iv) national, state, and county parks, monuments, and recreation areas; designated wilderness and wilderness study areas; wild and scenic river areas;

(ii) ecologically and scientifically significant natural areas, including wildlife management areas and habitats for listed or proposed endangered species as designated by federal law;

(iii) 100 year floodplains;

(iv) areas 200 feet from Holocene faults;

(v) underground mines, salt domes and salt beds;

(vi) dam failure flood areas;

(vii) areas subject to landslide, mud flow, or other earth movement, unless adverse impacts can be mitigated;

(viii) farmlands classified or evaluated as "prime", "unique", or of "statewide importance" by the U.S. Department of Agricultural Soil Conservation Service under the Prime Farmland Protection Act;

(ix) areas five miles of existing permanent dwellings, residential areas, and other habitable structures, including schools, churches, and historic structures;

(x) areas five miles of surface waters including intermittent streams, perennial streams, rivers, lakes, reservoirs, and wetlands;

(xi) areas 100 feet of uranium mill tailings;

(xii) areas 1000 feet of archeological sites to which adverse impacts cannot reasonably be mitigated;

(xiii) recharge zones of aquifers containing ground water which has a total dissolved solids content of less than 10,000 mg/l; or

(xiv) drinking water source protection areas designated by the State Drinking Water Committee;

(b) in areas:

(i) above or underlain by aquifers containing ground water which has a total dissolved solids content of less than 500 mg/l and which aquifers do not exceed state ground water standards for pollutants;

(ii) above or underlain by aquifers containing ground water which has a total dissolved solids content between 3000 and 10,000 mg/l when the distance from the surface to the ground water is less than 100 ft.;

(iii) areas, such as areas of extensive withdrawal of water, gas, or oil;

(iv) above or underlain by weak and unstable soils, including soils that lose their ability to support foundations as a result of hydrocompaction, expansion, or shrinkage;

(v) above or underlain by karst terrains.

(4) Incinerators associated with land disposal facilities may not be located above aquifers containing ground water which has a total dissolved solids content below 3000 mg/l. Incinerators not associated with ground disposal facilities shall not be located above aquifers containing ground water which has a total dissolved solids content below 500 mg/l.

(5) Facilities may not be located within a distance to existing drinking water wells and watersheds for public water supplies of one year ground water travel time plus 1000 feet for incinerators and of five years ground water travel time plus 1000 feet for land disposal facilities.

(6) The plan approval application shall include hydraulic conductivity and other information necessary to estimate adequately the ground water travel distance.

(7) The plan approval application shall include the results of studies adequate to identify the presence of ground water aquifers in the area of the proposed site and to assess the quality of the ground water of all aquifers identified in the area of the proposed site.

(8) The Executive Secretary may require the applicant to conduct vadose zone or other near surface monitoring.

(9) Emergency response and safety.

(a) The plan approval application shall demonstrate the availability and adequacy of emergency services, including medical and fire response. The application shall provide

evidence that the applicant has coordinated emergency response plans with local and regional emergency response resources.

(b) The plan approval application shall include plans for responding to emergencies both at the site and those involving the transport of wastes within the state. Details of the proposed emergency response plan shall be given in the plan approval application and will be stipulated in the plan approval and radioactive materials license.

(c) The plan approval application shall show proposed routes for transportation of radioactive wastes within the state. The Executive Secretary will not approve plans that propose radioactive waste transportation routes over roads or bridges where weight restrictions would be exceeded. The Executive Secretary will not approve plans that pose adverse impact or risk of harm to inhabited areas. The plan approval application shall address risks to inhabited areas, including both residential and non-residential areas; the width, condition, and types of roads to be used; roadside development on proposed routes; seasonal and climatic factors which may affect safety; alternate emergency access to the facility; the type, size, and configuration of vehicles proposed to haul wastes; transportation restrictions on proposed routes; and the transportation means and routes available to evacuate the population at risk in the event of accidents, including spills and fires.

(10) Siting Authority. The Executive Secretary recognizes that Titles 10 and 17 of the Utah Code give cities and counties authority for local use planning and zoning. Nothing in R313-25-3 precludes cities and counties from establishing additional requirements as provided by applicable state and federal law.